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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,159	07/30/2003	Richard W. Adkisson	200207722-2	7657

22879 7590 11/21/2006

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

TRUJILLO, JAMES K

ART UNIT

PAPER NUMBER

2116

DATE MAILED: 11/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,159

Applicant(s)

ADKISSON, RICHARD W.

Examiner

James K. Trujillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8, 13-19, 24 and 29-33 is/are rejected.
- 7) ☒ Claim(s) 4-7, 9-12, 20-23 and 25-28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 120604, 073003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. The office acknowledges the receipt of the following and placed of record in the file:

IDSs dated 7/30/03 and 12/06/04.

2. Claims 1-32 are presented for examination.

5

Claim Objections

3. Claims 1, 17 and 32 are objected to because of the following informalities:

a. Regarding claim 1, on line 17 of the claim, "a SYNC pulse" should be changed to "the SYNC pulse", in order to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10

b. Regarding claims 17 and 32 are objected to for similar reason to that of claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

15 4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

20

5. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Bell, U.S. Patent 5,434,996.

6. Regarding claim 13, Bell teaches a programmable synchronizer system for effectuating data transfer across a clock boundary between a core clock domain and a bus clock domain,

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wherein said core clock domain is operable with a core clock signal and said bus clock domain is operable with a bus clock signal, said core and bus clock signals having a ratio of N core clock cycles to M bus clock cycles, where $N/M \geq 1$ (col. 1, lines 33-39), comprising:

a. first circuit means (PCI-to-CPU SYNCH 107, figure 9) for synchronizing data

transfer from a core clock domain logic block to a bus clock domain logic block (CPU-to-PCI SYNCH 116 is use to transfer data from a CPU bus to a PCI bus, figure 9);

b. second circuit means for synchronizing data transfer from said bus clock domain logic block to said core clock domain logic block (PCI-to-CPU SYNCH 107 is use to transfer data from a PCI bus to a CPU bus, figure 9); and

c. control means for controlling said first and second circuit means, said control means operating responsive at least in part to configuration means that is configurable based on at least one of skew and latency associated with said core clock signal (wherein a control means is inherent in order to generate control signals PCI_COPY, ASYNCH, and HS_SYNCH, the CPU clock and the PCI clock, figure 9; wherein the all of the clocks are adjusted to minimize skew using PLLs, col. 5, lines 11-20 and col. 6, lines 14-38).

7. Regarding claim 14, Bell taught the programmable synchronizer according to claim 13, as described above. Bell further teaches wherein said first circuit means comprises a core-to-bus synchronizer operable to transfer data from a core clock domain to a bus clock domain, said core clock and bus clock signals having a ratio of 5 core clock cycles to 4 bus clock cycles (Bell teaches wherein the core clock signal is faster than the bus clock signal therefore he teaches it for any ratio, col. 1, lines 33-39).

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8. Regarding claim 15, Bell taught the programmable synchronizer according to claim13, as described above. Bell further teaches wherein said second circuit means comprises a bus-to-core synchronizer operable to transfer data from a bus clock domain to a core clock domain, said core clock and bus clock signals having a ratio of 5 core clock cycles to 4 bus clock cycles (Bell teaches wherein the core clock signal is faster than the bus clock signal therefore he teaches it for any ratio, col. 1, lines 33-39).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bell, U.S. Patent 5,434,996 in vie of Magro et al., U.S. Patent 6,516,362.

11. Regarding claim 16, Bell taught the programmable synchronizer system according to claim13, as described above. Bell does not explicitly disclose further including detector means for detecting a phase difference between said core clock and bus clock signals, said detector means operating to generate a control signal directed to said first circuit means.

However, Magro teaches a detector means for detecting a phase difference between said core clock (clk_cpu clock signal, col. 8, lines 6-38) and bus clock signals (clk_mem, col. 8, lines 6-38), said detector means operating to generate a control signal directed to said first circuit means (physe_sync signal is generated based on the phase relationship between the clk_cpu and

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clk_mem clock signal, col. 8, lines 6-38). Magro further provides the advantage of avoiding timing issues (col. 2, lines 1-15).

It would have been obvious to one of ordinary skill in the art, having the teachings of Bell and Magro before them at the time the invention was made to modify the system of Bell to

5 include detecting the phase difference using a detector means as taught by Magro.

One of ordinary skill in the art would have been motivated to make this modification in order to obtain the advantage of avoiding timing issues in view of the teachings of Magro.

Double Patenting

10 12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined
15 application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163
20 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned
25 with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR
30 3.73(b).

13. Claims 1, 13, 17, and 31 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 4 and 15 of copending Application No. 10/629,989. Although the conflicting claims are not identical, they are not

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patentably distinct from each other because claims 1, 13, 17 and 31 of the instant application are generic to claims 4 and 15 of 10/629,989 and are therefore obvious variations.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

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14. Claim 1-3, 8, 13-19, 24 and 29-33 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 10, 14-21 and 25 of U.S. Patent No. 7,100,065. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-33 of the instant application are generic to
10 claims 1-4, 10, 14-21 and 25 of 10/629,989 and are therefore obvious variations.

Allowable Subject Matter

15. Claim 4-7, 9-12, 20-23 and 25-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of
15 the base claim and any intervening claims.

16. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not teach or suggest individually or in combination

- a. wherein said first TRANSMIT MUXREG block includes a 2:1 MUX that is controlled by said c0_sel control signal.
- 20 b. wherein said second TRANSMIT MUXREG block includes a 2:1 MUX that is controlled by said c1_sel control signal.

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c. wherein said RECEIVE MUXREG block includes a 2:1 MUX that is controlled by said bus_sel control signal.

d. wherein said data comprises k-bit wide data and said first synchronizer includes k instances of each of said first and second TRANSMIT MUXREG blocks and said
5 RECEIVE MUXREG block.

17. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

10

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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U.S. Pat. No. 6,633,994 to Hoffman et al. teaches a method and system to optimize data transfer between devices operating at different speeds.

U.S. Pat. No. 6,249,875 to Warren teaches a system to transfer data between circuits operating at different clock speeds.

20

U.S. Pat. No. 5,884,100 to Normoyle et al. teaches a system to transfer data between a CPU clock domain and an I/O clock domain.

U.S. Pat. No. 5,256,912 to Rios teaches a system to transfer data between two clock domains.

25

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James K. Trujillo whose telephone number is (571) 272-3677. The examiner can normally be reached on M-F (8:00 am - 5:30 pm).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rehana Perveen can be reached on (571) 272-3676. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent
5 Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would
10 like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



James K. Trujillo
Primary Examiner
Technology Center 2100